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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MICHAEL MELKONIAN and BJOERN PODOLA

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Appeal 2009-009622  
Application 10/565,537  
Technology Center 1600

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Decided: February 16, 2010

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Before FRANCISCO C. PRATS, MELANIE L. MCCOLLUM, and  
STEPHEN WALSH, *Administrative Patent Judges*.

WALSH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) involving claims to a method for cultivating eukaryotic microorganisms or blue algae. The Patent Examiner rejected most of the claims as anticipated, and all of the claims for obviousness. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

## STATEMENT OF THE CASE

“The invention refers to a method and a device for cultivating eukaryotic microorganisms . . . . The invention is also applicable to blue algae.” (Spec. 1.) Claims 18-30, which are all the pending claims, are on appeal. Claim 18 is representative and reads as follows:

18. A method for cultivating eukaryotic microorganisms or blue algae, the method comprising:
- applying the eukaryotic microorganisms or blue algae to a first major surface of a sheet-shaped perforated support, wherein the sheet-shaped perforated support is essentially impermeable to the eukaryotic microorganisms or blue algae and wherein the eukaryotic microorganisms or blue algae remain immobilized on the first major surface and are adapted to be removed;
  - applying an aqueous solution to a second major surface of the sheet-shaped perforated support, wherein the aqueous solution flows along the second major surface of the sheet-shaped perforated support and wherein a portion of the aqueous solution flowing along the second major surface of the sheet-shaped perforated support is essentially transported by capillary forces from the second major surface to the first major surface through the sheet-shaped perforated support; and
  - growing the eukaryotic microorganisms of blue algae on the first major surface of the sheet-shaped perforated support.

The Examiner rejected the claims as follows:

- claims 18-28 under 35 U.S.C. § 102(b) as anticipated by Davies<sup>1</sup> in light of Chaverot;<sup>2</sup>
  - claims 18-30 under 35 U.S.C. § 103(a) as unpatentable over Davies;
- and

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<sup>1</sup> US 4,693,983, issued to Graham A. Davies et al., Sep. 15, 1987.

<sup>2</sup> US 5,445,473, issued to Pierre Chaverot et al., Aug. 29, 1995.

• claims 18, 19 and 22-24 under 35 U.S.C. § 103(a) as unpatentable over Halling.<sup>3</sup>

## ANTICIPATION

### *The Anticipation Issue*

The Examiner's position is that Davies taught "a method using a reactor for cultivating plant or animal cells." (Fin. Rej. 4.) The Examiner found that Davies' device had the structure of the sheet-shaped perforated support used in Appellants' claims, and that Davies' method was the same as the method Appellants now claim. (*Id.* at 4-5.)

Appellants contend that "Davies fail to disclose or suggest the use of anything that could be reasonably considered to be a sheet-shaped perforated support." (App. Br. 8-9.) Further, "even if the support matrix 1 of Davies could be construed as a sheet-shaped perforated support, eukaryotic microorganisms or blue algae are not applied or grown" in Davies method. (*Id.* at 12.)

The issue with respect to this rejection is whether Appellants have shown that Davies did not disclose each and every limitation of the claimed method.

### *Findings of Fact*

1. Davies taught method of cultivating biological material "such as plant and animal cells" in a reactor. (Davies, 1:5-7.)

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<sup>3</sup> WO 90/02170, by Peter James Halling et al., published Mar. 8, 1990.

2. Davies taught that “[t]he reactor may be used for cultivating any type of biological material but is particularly suitable for cultivating animal or plant cells. The unit is most suitable for anchorage dependent plant cells such as carrot or pepper . . . .” (*Id.* at 2:54-61.)

#### *Principles of Law Relating to Anticipation*

“To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently.” *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

#### *Analysis of the Anticipation Issues*

Appellants have argued that Davies did not disclose applying eukaryotic microorganisms or blue algae to the support structure. The Examiner did not find that Davies taught a step of applying eukaryotic microorganisms or blue algae, and the Answer did not respond to Appellants’ argument. In our review of Davies, we find no mention of eukaryotic microorganisms or blue algae. We must therefore reverse the rejection because the Examiner has not pointed to evidence supporting a finding that Davies disclosed every limitation of the claimed invention.

### OBVIOUSNESS

#### *Principles of Law Relating to Obviousness*

When determining whether a claim is obvious, an Examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995). “Rejections on obviousness grounds cannot be

sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006), cited with approval in *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417-18 (2007).

A. The Rejection over Davies

The Examiner’s position is that Davies anticipated the subject matter of claims 18-28, thus rendering them obvious, but did not teach a step of harvesting. (Fin. Rej. 7.) The Examiner concluded that a harvesting step would have been obvious. (*Id.*)

Appellants repeat their argument that “Davies neither discloses nor suggests many features of claim 18.” (App. Br. 13.)

We agreed with Appellants that Davies did not disclose applying eukaryotic microorganisms or blue algae to a support. The explanation of the obviousness rejection does not account for that difference between Davies’ method and Appellants’ claimed method. We conclude that the rejection did not present a prima facie case of obviousness.

B. The Rejection over Halling

*The Issue*

The Examiner’s position is that Halling taught a method and apparatus for culturing microbial cells. (Fin. Rej. 9-10.) The Examiner found that Halling did not teach a sheet-shaped support, but concluded that changing the shape of the support would have been obvious “because there is a legal precedent that the change of shape in a material used in the invention would

be obvious to a person of ordinary skill in the art in the absence of persuasive evidence to prove the significance of such a shape in the invention.” (*Id.* at 10.) As support, the Examiner cited the MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2144.04, and *In re Dailey*, 357 F.2d 669 (CCPA 1966). (*Id.*)

Appellants first object that the Examiner did not apply the correct legal standard. (App. Br. 15.) According to Appellants, “[t]he question of obviousness is whether the teaching of Halling suggests the features of claim 18.” (*Id.*) In Appellants’ view, the rejection “failed to articulate any rational reason why a person of ordinary skill in the art would have modified the tubular structure of Halling to arrive at a sheet-shaped perforated support,” and “failed to demonstrate a prima facie case of obviousness.” (*Id.*)

Appellants then argue that their sheet-shaped support “facilitate[s] much easier removal of such organisms than can be achieved using a tubular structure to grow organisms.” (*Id.* at 16.)

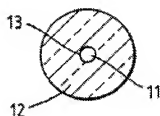
The issues with respect to this rejection are:  
was a prima facie case of obviousness presented; and  
did Appellants provide an explanation that the shape of the support is significant?

#### *Further Findings of Fact*

3. Halling described a “membrane bioreactor which provides close contact between microbial cells and a gas by culturing microbial cells on the outside of a membrane through which a culture medium can flow and passing the gas through a support matrix surrounding the membrane.” (Halling, Abstract.)

4. Halling's Figure 2 shows that the bioreactor has a tubular shape:

*Fig. 2.*



{Fig. 2 shows a cross section or end elevation view of Halling's tubular bioreactor.}

#### *Analysis*

According to the MPEP, “[i]f the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court.” (MPEP § 2144.04.) Although the Examiner cited *In re Davies*, the Examiner did not explain how the facts in *Davies* are similar to the facts involved in this appeal. Without an explanation showing that the facts here are sufficiently similar to the facts in *Davies*, we are unpersuaded that the *Davies* reasoning is applicable here. “[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” See *Kahn*, 441 F.3d at 988.

Appellants explained that the sheet-shape of their support is significant: it facilitates easier removal of organisms than a tubular support like Halling's would allow. The Examiner dismissed this argument as unsupported by evidence. (Ans. 16.) The dismissal does not persuade us



that a person of skill in the art would require further evidence to agree with Appellants.

We are likewise unpersuaded by the Examiner's new argument that a tubular shape is a sheet shape. (Ans. 16.) The reasoning appears to be that because a definition of "membrane" is "a thin soft pliable sheet or layer," Halling's membrane is "a sheet-shaped perforated support rolled in a tubular configuration." (*Id.*) The obviousness rejection of record was based on a finding that "Halling et al. do not teach the support being sheet-shaped." (Ans. 8.) The new semantic argument undercuts rather than supports the obviousness rejection, because it appears to mean that there is no difference between the tubular shaped support Halling taught and the sheet-shaped support that Appellants use. In any case, we are not persuaded that a tube shape is the same as a sheet shape.

#### CONCLUSIONS OF LAW

Appellants established that Davies did not disclose applying eukaryotic microorganisms of blue algae to a support, and therefore that Davies did not anticipate the claimed invention.

The Final Rejection and Answer did not present a *prima facie* case of obviousness based on Davies or on Halling.

#### SUMMARY

We reverse the rejection of claims 18-28 under 35 U.S.C. § 102(b) as anticipated by Davies in light of Chaverot;

we reverse the rejection of claims 18-30 under 35 U.S.C. § 103(a) as unpatentable over Davies; and

we reverse the rejection of claims 18, 19 and 22-24 under 35 U.S.C.  
§ 103(a) as unpatentable over Halling.

REVERSED

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